



PATENT ABSTRACTS OF JAPAN

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H01L 21/3205**H01L 21/302****H01L 21/90**(21) Application number: **63210303**(22) Date of filing: **24.08.88**(71) Applicant: **MATSUSHITA ELECTRIC IND CO LTD**(72) Inventor: **SAWADA KAZUYUKI
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YAMAMOTO HIROSHI**(54) **MANUFACTURE OF SEMICONDUCTOR DEVICE**filled with the SiO₂ film 10.

(57) Abstract:

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PURPOSE: To manufacture a semiconductor device excellent in closely filled up reliability and capable of high integration when the second insulating films are formed by a method wherein the first insulating films are processed so that the normals on the surface of the first insulating film at slopes may make specific angles with the normals of the main surface of a substrate.

CONSTITUTION: A substrate is arranged in a dryetching device, where mixed gas of CH₄ and Ar is introduced to etch away SiO₂ films 6 by plasma for forming SiO₂ films 8. At this time, the SiO₂ films 6 can be anisotropically etched away by CF₄ gas while etching the SiO₂ films 6 by Ar gas making an angle of 45° so that the SiO₂ films 8 in the gaps between Al wirings 4A-4C may be etched away making an angle of 60°-85° down to the gap bottoms. Later, the other SiO₂ film 10 as the second insulating film is deposited. At this time, the SiO₂ films 8 are provided with no sides making angles perpendicular to or exceeding the same with the main surface of the substrate so that the gaps of Al wirings 4 (4A-4C) having the aspect ratio exceeding one may be closely

